AYK Fisheries Research Update

Alaska Department of Fish and Game
July, 2001

1. Background

Evidence suggests salmon destined for the AYK region have been subject to stress in the marine environment. Unprecedented climate and ocean conditions that have existed in the marine ecosystem in recent years appear linked to salmon growth and survival. Other potential causes include interception of AYK chum and chinook salmon in other fisheries, and competition from hatchery stocks. Little is known of the magnitude of and interactions among these and other possible causes.

Short and long term fisheries research in freshwater, nearshore, and ocean environments is needed to understand causes and remedies for recent Western Alaska salmon run failures. Necessary studies can best be accomplished through a collaborative effort in which government agencies and rural organizations in Western Alaska work closely together to define, administer and conduct research projects, evaluate findings, implement solutions, and monitor results.

The following material describes recent and upcoming research programs or projects directed toward (1) understanding causes of salmon fishery failures and (2) toward gathering information that will enable more precise conservation management of present and future salmon runs.

2. Western Alaska Salmon Fisheries Disaster Mitigation Research Plan (WASFDP): Phase 1 -- AYK-Bristol Bay 1998

The Western Alaska Salmon Fisheries Disaster Mitigation Research Plan (WASFDP) began **when $7 million in federal funds was appropriated in 1998, through the Magnusen Stevens Act.** The program operates research projects throughout the affected area, in cooperation with local and regional non-profit organizations. Projects are specifically focused on improving management techniques and the long-term viability of the locally important commercial and subsistence fisheries. In developing the WASFDP plan, the stock assessment and fishery management programs for Alaska Peninsula, Bristol Bay, Kuskokwim River, and Yukon River areas were evaluated. Gaps between the existing programs and the ideal were identified, and specific research questions were formulated. Research projects were designed to address the research questions and provide specific improvements in the stock and fishery assessment program. The WAFSDP focuses on major salmon stocks within the Alaska Peninsula, Bristol Bay, Kuskokwim River, and Yukon River areas.

Within each area, several research questions were formulated to guide the development of the research plan, The term of the research will be three years, work occurring during the 2000 – 2002 field seasons

Alaska Peninsula Sockeye Salmon

Research Question 1. What is the freshwater production and carrying capacity of the Bear Lake and Chignik Lake Systems?

Project 1. Chignik Lakes carrying capacity and sockeye production
Project 2. Bear Lake sockeye smolt production.

Bristol Bay Sockeye and Chinook Salmon.

Research Question 2. What specific improvements in fisheries management precision can be accomplished within the term of the WASFPD?

Project 1. Evaluation of inriver test fishing projects.
Project 2. Nushagak River sonar project improvement.
Project 3. Nushagak District modeling and escapement goal evaluation.

Research Question 3. What is the freshwater production of sockeye salmon in the Kvichak River System?

Project 4. Analysis and estimation of salmon smolt out-migration.
Project 5. Juvenile sockeye salmon assessment and limnology of Lake Illiamna..
Project 6. Genetic studies of Bristol Bay sockeye salmon.

Kuskokwim River Chum and Coho Salmon.

Research Question 4. What is the total escapement of coho salmon by age to the Kuskokwim River?

Research Question 5. What is the total escapement of chum salmon by age to the Kuskokwim River?

Project 1. Kuskokwim River coho salmon mark/recapture.
Project 2. Kuskokwim River sonar.
Project 3. Kuskokwim River tributary escapement monitoring.

Yukon River Chinook and Fall Chum Salmon.

Research Question 6. What is the total escapement of chinook salmon by age to the Yukon River?

Project 1. Yukon River chinook salmon radio telemetry studies.
Project 2. Yukon River sonar species apportionment and chinook salmon ASL sampling.
Project 3. Yukon River tributary escapement assessment.
Project 4. Reconstruction of Yukon River chinook salmon runs.

Research Question 8. What is the total escapement of fall chum salmon by age to the Toklat River?

Project 5. Tanana/Toklat River fall chum salmon escapement assessment.

Western Alaska Salmon

Research Question 9. What is the preseason abundance of western Alaska chum salmon.

Project 1. Forecasting relative abundance of western Alaska Chum Salmon.

Research Question 10. What is the contribution of Western Alaska salmon to the salmon drift net fisheries in the Russian EEZ?

Project 2. Genetic study of sockeye salmon inhabiting the western Bering Sea.

WASFDP Project Summary

	FY2000	FY2001	FY2002	Total
PROJECT				
Technical Support	$9,000	$9,000	$6,047	$24,047
Chignik Lakes System Food Web and Sockeye Production	$132,751	$121,659	$121,659	$376,069
Bear Lake Sockeye Smolt Production	$75,948	$47,148	$47,148	$170,244
Evaluation of In-river Test Fishing Projects	$67,986	$40,986	$40,986	$149,958
NushagakRiver Sonar Project Improvement	$19,820	$227,310	$89,670	$336,800
Nushagak District Modeling and Escapement Goal Evaluation	$64,920	$56,240	$42,040	$163,200
Analysis and Estimation of Salmon Smolt Out-Migration	$229,306	$115,511	$105,200	$450,017
Juvenile Sockeye Assessment and Limnology of Lake Illiamna	$151,605	$141,517	$116,177	$409,299
Genetic Studies of Bristol Bay Sockeye Salmon	$138,330	$164,124	$147,546	$450,000
Kuskokwim River Coho Salmon Mark Recapture	$114,924	$189,032	$191,044	$495,000
Kuskokwim River Sonar	$350,600	$104,000	$169,000	$623,600
Kuskokwim River Tributary Escapement Assessment	$142,550	$154,076	$301,153	$597,779
Yukon River Chinook Salmon Radio Telemetry Studies	$609,617	$375,695	$387,694	$1,373,006
Yukon R. Sonar Species Apportionment and Chinook ASL Sampling	$52,681	$82,459	$137,383	$272,523
Yukon River Tributary Escapement Assessment	$91,100	$0	$0	$91,100
Reconstruction of Yukon River Chinook Salmon Runs	$0	$30,000	$15,000	$45,000
Tanana/Toklat River Fall Chum Salmon Escapement Assessment	$101,151	$82,540	$82,540	$266,231
Forecasting Relative Abundance of Western Alaska Chum Salmon	$34,000	$33,000		$67,000
Genetic Study of Sockeye Salmon Inhabiting the Western Bering Sea	$68,479	$71,677	$60,228	$200,384
Total Program	$2,602,055	$2,168,732	$2,184,145	$6,954,932

3. AYK Salmon Disaster – Phase 2 Research Plan (Proposed)

This research plan is presently a concept embodied in a **request for federal funds in the amount of $49 million over 5 years,** in response to the ongoing Western Alaska salmon disaster, which again precipitated a disaster declaration by Governor Knowles in July, 2000. This Phase 2 funding proposal consists of (1) a federal FY '01 supplemental appropriation request, submitted 6/20/01, for $500,000 to support a research planning and coordination effort ("Western Alaska Sustainable Salmon Initiative") and (2) a five-year cooperative research program undertaken by the AYK regional groups, ADF&G and NMFS. A detailed Phase 2 study plan will be developed through a collaborative process, using an MOU framework similar to the Norton Sound Research and Restoration Agreement, described below.

The AYK Phase 2 research plan builds on the Phase 1 effort initiated in 1998. The Phase 1 AYK-BB research program is heavily weighed toward gaining a better understanding of salmon escapement to the spawning grounds in the AYK region, and the out-migration of salmon in the both the AYK and Bristol Bay regions. Phase 1 projects add greatly to the in-season enumeration of salmon, which allows greater management precision, greater assurance that basic spawning needs are met, and better evaluation of in-river survival.

Phase 2 projects will enable the continuation of many vital Phase 1, in-river salmon enumeration projects, but will also address broader questions pertaining to the causes of run failures in the AYK region. For example, Phase 2 projects will address the distribution of sockeye, chum and chinook salmon throughout their migratory range. It will support an investigation into the early life history and migration of the AYK origin salmon in the eastern Bering Sea and Pacific Ocean. In addition, support will be given to new stock assessment and fishery monitoring programs in the Yukon and Kuskokwim River and Norton Sound areas. A preliminary gap analysis for salmon AYK research is included below.

In addition to providing research funds to ADF&G, the Phase 2 program is expected to provide direct or indirect appropriations to local community and non-profit organizations to develop community based stock monitoring programs, develop needed fishery research infrastructures, provide educational opportunities, internships, and employment for local residents, and support operations of regional planning processes and teams.

4. Norton Sound Research and Restoration Plan

This plan is being developed through a collaborative, regional and inter-agency forum in response to declining salmon runs, which are the basis for the Norton Sound Fisheries Disaster Declaration. A Memorandum of Understanding among participants, signed in April, 2001, establishes Steering and Technical Committees that will develop and implement a comprehensive and strategic Norton Sound Salmon Research and Restoration Plan. The development of the plan and implementation of research and restoration is funded by a **$5 million federal appropriation** and other funds that may become available. The Steering Committee has members from all four divisions of

ADF&G, the federal subsistence management agencies, the National Marine Fisheries service, Kawerak, Sitnasuak Native Corporation, Bering Strait Native Corporation, Nome Eskimo Community, local fish and game advisory committees, the Norton Sound Economic Development Corporation, Bering Sea Fisherman's Association, Norton Sound Aquaculture Association, and the Federal Subsistence Regional Advisory Council.

For the purpose of illustrating potential projects, the following is an earlier suggested list of Norton Sound Fishery Research Projects, developed by ADF&G and Kawerak in 1999 for the purpose of securing research funding.

- Norton Sound Symposium
- Norton Sound Research Biologist
- Norton Sound Salmon Escapement Assessment Support
- Norton Sound Chum Salmon Streamside Incubation
- Norton Sound Juvenile Salmon Outmigration
- Norton Sound Environmental Baseline Monitoring
- Norton Sound Salmon Habitat Study
- Norton Sound Information Database
- Norton Sound Marine Studies Coordination

5. State FY 01 Capital Improvement Projects

Capital Improvement Projects for coho salmon in the amount of $500,000 were approved for Upper Cook Inlet and the Kuskokwim Management areas. These projects will improve our knowledge of overall returns and escapements by increasing the number of systems for which estimates of coho spawning escapements are available.

For the Kuskokwim Region, escapement enumeration projects for coho salmon returning to the George and Tatlawiksuk Rivers will be expanded. These salmon escapement projects are being conducted cooperatively with the Kuskokwim Native Association.

For the Kongrukluk River, which is a tributary of the Kuskokwim River, a resistance board weir will replace the existing fixed-picket weir in the middle Kuskokwim River basin. This weir can operate better during high water events that often disable the current fixed-picket weir during the coho salmon season.

6. Strategic Plan for Salmon Research in the Kuskokwim River Drainage

In November 2000, staff from Commercial Fisheries, Sport Fisheries, Habitat and Restoration, and Subsistence divisions, Alaska Department of Fish and Game, developed a draft strategic plan for research and related activities targeting stocks of concern (chinook and chum salmon) and healthy stocks (coho and sockeye salmon) in the Kuskokwim River drainage. This planning effort was lead by Region III's Research

Supervisor. The mission was two-fold: to fulfill the department's obligation to the Alaska Board of Fisheries by drafting a research plan for inclusion into a board-mandated Action Plan for stocks of concern; and, to direct funds from various sources towards meeting the information needs and thus the goals of the Alaska Sustainable Salmon Policy. A multi-criteria decision analysis technique, the Analytic Hierarchy Process, was used to facilitate the description of the problem. Through consensus, the group prioritized projects and related activities. Five goals were established, which mirror principles in the Sustainable Salmon Policy. **The planning process did not receive directed funding.**

7. Yukon Salmon Treaty Research

The purpose of the Yukon Salmon Treaty negotiations is to develop coordinated conservation and management between the U.S. and Canada for chinook and fall chum salmon stocks that spawn in the Yukon River drainage in Canada. The Yukon River Panel was established to implement the Interim Agreement and administer a Yukon River Salmon Restoration and Enhancement (R&E) Fund established by the 1997 Interim Agreement. The Panel consists of a six-member US section and a six-member Canadian section. On the US side there is a 12-member public advisory group. The Interim Agreement called for cooperative studies to determine the status of salmon stocks of common concern. **Funding is provided by Congress through an annual appropriation**. Assessment and inventory of wild stocks is specified as an integral part of efforts to maintain, enhance, and restore the salmon returns. Continuing and new studies for FY 2001 include projects conducted by ADF&G, and several federal agencies:

ADF&G:
Salmon Stock ID
GSI laboratory
Subsistence Harvest Monitoring
Spawning Escapement Survey
Yukon Sonar Pilot Station
Yukon R. Salmon test fisheries (new)
Yukon R. Chum Salmon GSI Study (new)
Local Knowledge of *Ichthyophonus* Prevalence in Chinook (new)
Yukon R. Subsistence Salmon Catch Timing Study (new)
Chena R. Juvenile Chinook Salmon Study (new)
Chatanika R. Chinook Salmon Study (new)
Habitat Baseline Study (new)

USFWS:
Two counting weirs
Site location study for weirs, radio tracking
Contract fish wheels: counting, capturing
Environmental Education Program
DNA Chinook and Chum genetics Program (new)
Radio Tagging and Satellite Data Transmission (new)

NMFS

Yukon R. Salmon Radio-Tagging Study

USGS

Chena/Tanana/Koyukuk Chum ecology studies: spawner/smolt relationships
Chinook rearing ecology and habitat use

BLM

Nome Creek, Chatanika drainage channel restoration and salmon monitoring
Document salmon production in Yukon R. tributaries
Salmon escapement counts, estimate production capability

YRDFA (through NMFS)
Stock origins, migration patterns, and marine productivity of Bering Sea chinook
Habitat restoration of Yukon R. drainage salmon streams
Stock restoration through instream incubation technology (Chatanika R., others)
Chinook smolt productivity analysis and outmigration

YRDFA (through USFWS)
U.S./Canada Yukon River Salmon Information and Education Program

8. Federal Subsistence Program Fisheries Research and Monitoring

In establishing a unified fisheries resource monitoring program as part of dual subsistence management, the Interior and Agriculture departments have emphasized the importance of collecting, analyzing, and reporting new information on fish populations, subsistence harvest patterns, and traditional ecological knowledge, for use by all managers. The monitoring program focuses on using consistent data collection and statistical analysis methods, so that new data can readily be compiled into existing data sets, and used by state and federal managers in their respective areas of responsibility. **The federal subsistence program provides research and monitoring funds to the Alaska Department of Fish and Game, tribal and other organizations through Section 809 Cooperative Agreements.**

Projects principally provide data on stock status and trends, harvest monitoring, and traditional ecological knowledge. Results will be used by State and Federal agencies/regulatory bodies and their public advisory systems to formulate fisheries regulations and conduct management programs. The following studies will be conducted by the department in FY 2001, in cooperation with other entities and agencies:

#	title	div	cost
01-023	Upper Kuskokwim River Inseason Subsistence	CFD	5,300
01-070	Salmon Harvest Data/Genetic Diversity of Chinook	CFD	98,580
01-118	Kanektok River Resistance-Board Weir	CFD	80,000
01-122	Lower Yukon River Cooperative Salmon Drift	CFD	101,134
01-132	Bethel Area Inseason Subsistence Salmon	CFD	8,438
01-204	Estimate Coho Escapement in Ugashik Lakes System	CFD	12,700
01-206	Estimate Sockeye and Coho Salmon Escapement	CFD	2,500
01-225	Middle Kuskowkwim River Inseason Subsistence	CFD	5,300
01-003	TEK Subsistence Old John Lake & Arctic Village	DS	7,950
01-024	Bethel Area Post-Season Household Surveys	DS	12,104
01-047	Togiak River Subsistence Harvest Monitoring	DS	20,628
01-100	TEK Non-Salmon in the Koyukuk River	DS	125,102
01-101	Eastern North Slope Fish Harvest Assessment	DS	64,320
01-106	Validity & Reliability of Harvest Assessment Methods	DS	116,446
01-107	Implementation of Statewide Subsistence Fisheries…	DS	95,539
01-109	TEK Alaska Peninsula/Becharof NWR	DS	23,218
01-110	Harvest & Use of Non-Salmon Species - Copper Basin	DS	37,142
01-112	Aniak River Subsistence Fisheries Study	DS	41,393
01-114	Nunapitchuk Freshwater Fish Studies	DS	43,981
01-211	TEK Upper Yukon, Porcupine and Black River	DS	4,000
01-224	Nome Sub-district Subsistence Salmon Survey	DS	5,250
01-235	L. Minchumina, Telida, Nikolai, Cantwell Community Use	DS	9,000
01-113	E. North Slope Dolly Varden GSI & Assessment	DSF	198,900
01-136	NW Alaska Char Stock ID	DSF	77,800
01-137	NW Alaska Dolly Varden Spawning Stock Analysis	DSF	218,700
01-140	Yukon Flats Northern Pike	DSF	122,300
01-141	Holitna R Chinook, Coho and Chum Salmon Escapment	DSF	279,500
01-147	Survey of Sport Fisheries in the Aniak River	DSF	91,400
01-173	Harvest Assessment of Recreational Fishery for Salomon	DSF	149,600
01-154	Project Information and Access System	DSF	150,000
	TOTAL:		**2,208,225**

9. Integration With Other Research Programs and Funding Sources

The department's strategic research response is one of many research and monitoring programs that can potentially affect this region. Establishing coordination and linkages among these programs will occur at the level of the Commissioner's Office, which will ensure coordination among divisions. This strategic research response occurs within the policy context of, and is subject to oversight by, the Governor's Oceans, and Watersheds Initiative:

a. Oceans and Watersheds Initiative

Mission: To maintain and protect the pristine clean oceans, watersheds, seas, bays, rivers, streams, and air in and around Alaska. To ensure the continued health and

productivity of marine wildlife and fish so critical to the subsistence, economic, personal use and well-being of Alaskans.

Alaska has an opportunity to guide research and financial resources efficiently, to understand and protect the habitat and resources of our oceans and watersheds. This will be achieved through collaboration in research and monitoring efforts, coordinated data bases, and coordinated use of research facilities. The initiative will focus on the following issues and areas:

- Contaminants-Persistent Organic Pollutant (POPs), Radionueclides, and metals are beginning to be detected in the arctic, marine animals and ecosystem in Alaska. Bio-accumulation in the food web poses as a potential threat to human health in rural Alaska, and could undermine Alaska seafood's reputation for being pure and healthy.

- Oceans-Dramatic changes are being witnessed in populations of marine fish, birds and mammals. These species are important for subsistence, commercial fishing and as indicators of the health of the ocean. Scientific research on the marine ecosystem is being conducted by many disparate institutions and is generally poorly coordinated or integrated.

- Watersheds-Alaska's oceans are inextricably connected to the states major watersheds. Nothing exemplifies this connection better than the life history of Pacific Salmon, which spawn in the rivers but spend most of their lives at sea before returning to the river. Watershed based planning is emerging as a key management tool in Alaska.

- Although individual research efforts address many aspects of Alaska's oceans and watersheds, there is presently no integration or coordination of that research; A comprehensive scientific research and sentinel monitoring program is needed to address the long-term health of Alaska's oceans and watersheds.

Strategies:

- The initiative will be reflected in a statewide coordinated, comprehensive, interdisciplinary research effort and a "sentinel" monitoring program to provide an early warning of changes in Alaska's oceans and watersheds, and marine wildlife and fish populations, including monitoring the presence of contaminants. This effort will integrate the Pacific Salmon Treaty Funds, The EVOS-GEM Program, The North Pacific Research Board, The ADF&G Western Alaska Salmon Fisheries Disaster Mitigation Research Plan (described in this document), and other state, federal, and University research efforts..

b. Also within the scope of the Ocean and Watersheds Initiative, other specific external ocean research programs and funding options include:

- North Pacific Research Board (this board manages an ongoing research endowment that originated with the Dinkum Sands settlement funds)

- North Pacific Anadromous Fish Commission (international body establishes North Pacific fisheries research priorities and guidelines)

- Coastal Impact Assistance Funds, the remnants of CARA Title 1, will come to the governor in the amount of $8.5 million annually, to be expended on coastal and marine initiatives.

- Exxon Valdez Gulf Ecosystem Monitoring (GEM). This fisheries research program may consider topics that enhance understanding of the causes of the YKN fisheries disaster.

DRAFT RESEARCH THEMES FOR A/YK SALMON RESEARCH FUNDING REQUEST
(AYK Coalition and ADF&G rapid gap analysis)
***Draft #1:* June 4, 2001**

Research Themes	Sub-themes	Partial Listing of Knowledge Gaps / Key Research Questions / Statement of Need
Synthesis of Current Knowledge and Comprehensive Research Planning: 5 – 10 Year Horizon	**Phase 1:** Documentation of available information (Perhaps via a scientific conference/symposium co-organized by ADF&G, NMFS, FWS-OSM, UAF). Including such topics as:	
	• fish population dynamics	
	• population genetics	
	• community ecology	
	• ecosystem ecology – freshwater and marine	
	• cultural uses and fishery harvest	
	• traditional ecological knowledge	
	Phase 2: Comprehensive Research Planning to identify critical information needed to understand the dynamics of AYK salmon and their ecosystems; develop 5 – 10 year research agenda and goals.	

Research Themes (Continued)	Sub-themes (Continued)	Partial Listing of Knowledge Gaps / Key Research Questions / Statement of Need
Early Life History Stage– egg to smolt	**Population biology and dynamics of eggs, fry and smolt**	
	• Abundance and distribution. Nature and sources of inter-annual variability	
	• Spatial and temporal dynamics of migration	
	• Growth	
	• Mortality sources and rates – biotic and abiotic variables	

	Community and Ecosystem ecology	
	• Dynamics of invertebrate abundance, distribution, and production rates.	
	• Predator-prey interactions – fish, avian, and mammals.	
	• Habitat Quality and Habitat Change: Location, quality, and quantity of egg incubation and juvenile rearing habitat and changes over time.	
	• Changes in deposition of marine origin nitrogen and phosphorus.	
	• Impact of Climate change.	

Research Themes (Continued)	Sub-themes (Continued)	Partial Listing of Knowledge Gaps / Key Research Questions / Statement of Need
Marine Life History – smolt to adult	**Population biology and dynamics**	
	• Distribution and movement patterns of salmon stocks in response to ocean dynamics.	Stock identification and distribution
	• Interactions between hatchery and wild salmon stocks.	
	• Fishery harvest –by stock, by fishery - both by-catch and directed fisheries.	
	• Variation in ocean survival and growth of juveniles and adults.	
	• Natural mortality sources, rates, and dynamics.	
	• Ocean vectors of disease	
	Community and Ecosystem ecology	
	• Impact of currents, ocean temperature and other abiotic forces on Bering Sea biological productivity.	
	• Phytoplankton dynamics – e.g., Cocolithophore	
	• Impact of changing trophic dynamics on salmon	
	• Predator-prey dynamics	
	• Nitrogen, phosphorus dynamics and relationship to currents and effects on primary productivity.	
	• Climate change.	
		Partial Listing of Knowledge Gaps / Key

Research Themes (Continued)	Sub-themes (Continued)	Research Questions / Statement of Need
Freshwater Migration and Spawning – (adult to egg deposition.)	**Population biology and dynamics.**	
	• Abundance estimates by species- Both mainstem enumeration and escapement monitoring.	
	• Run strength assessment. Understanding the nature and sources of variation in seasonal cumulative run patterns.	
	• Reproductive ecology – e.g., egg deposition, fertilization, effects of changes of size, *Icthyophonus*, etc.	
	• Genetic Stock identification and distribution in watersheds	
	• Changes in age, sex, and length over years.	
	• Fishery harvest – by fishery, by stock, amount, timing, and location.	
	• Natural mortality – predators, effects of disease , and other sources of variation.	
	Community and Ecosystem ecology	
	• Changes in the input of marine derived nutrients to freshwater aquatic (esp. fry, smolt and invertebrates) and terrestrial communities	
	• Predator-prey dynamics	
	• Effects of climate change on run timing and spawning.	
	Modeling and Data Analysis	
	• Preseason prediction of run size	
	• Prediction of run size based on in-season data	
	• Estimating the cumulative effects of uncertainty in parameter estimation.	
	• Biological escapement modeling	
	• Connecting salmon dynamics of marine and freshwater ecosystems.	

Research Themes (Continued)	Sub-themes (Continued)	Partial Listing of Knowledge Gaps / Key Research Questions / Statement of Need
Cultural Uses and Traditional Ecological Knowledge	• **Harvest monitoring** to assess change in numbers over time of fish used by village, by season, species, and drainage.	
	• **Inter-generational knowledge of changes in the abundance, distribution and quality of fish and use of critical spawning habitat.**	
	• **Community-based monitoring of salmon habitat, age, sex, length, disease frequency, parasite loading, and contaminants**	

Western Alaska Sustainable Salmon Initiative
(DRAFT Funding Request, June 2001)

Comprehensive Research Planning and Coordination for Sustainable Management

A coalition of Western Alaska Regional Native organizations that includes TCC, Kawerak and AVCP, and the Alaska Department of Fish and Game (ADF&G) hereby request $500,000 through the 2001 supplemental budget to conduct comprehensive research planning and coordination for Yukon, Kuskokwim, and Norton Sound salmon stocks.

Disastrously low runs of AYK salmon stocks over the past decade have caused enormous hardships for scores of communities in the region; salmon runs have been so poor the region has been declared a disaster three of the last five years. The 2001 AYK salmon runs are projected to be so bad that subsistence fisheries are being restricted or closed and virtually all the region's summer commercial fisheries have been closed.

Alaska Native regional organizations and state and federal agencies including ADF&G, NMFS and the USFWS have formed a partnership to better understand and attempt to reverse this frightening and devastating decline in salmon stocks. These agencies and organizations understand current salmon research needs as well as ongoing research initiatives. All agree, an essential and immediate first step is to develop a comprehensive research plan to identify and prioritize research needs, and establish a communications process and network to coordinate existing research efforts that are currently conducted in a piecemeal fashion.

Specifically, funding will be used to:

A. Compile and review current knowledge of Western Alaska salmon stocks. Contemporary scientific and traditional ecological knowledge about the marine and freshwater ecosystems that support western Alaska, will be summarized and synthesized in two ways.

Convene a scientific conference/symposium, co-organized by ADF&G, NMFS, FWS-OSM, UAF and regional Native organizations, covering key research topics such as population dynamics, ecosystem ecology, genetics, and traditional knowledge.

Establish a system to assure Western Alaska salmon databases and information sources are readily available.

B. Implement a comprehensive research planning agreement (see attached Draft AYK Salmon Research and Restoration Memorandum of Understanding)**.** Establish a Western Alaska Salmon Steering Committee and Scientific Technical Committee. Identify and prioritize critical research needs. Develop a ten-year agenda fostering coordinated salmon research.

C. Establish an ongoing research coordination process. Using the administrative support mechanism established through the AYK Salmon Research and Restoration Memorandum of Understanding (see attached draft), develop a Western Alaska research communication and coordination process and network.

Norton Sound Research and Restoration Memorandum of Understanding

I. Introduction

Over the past 20 years, salmon returns to the Norton Sound have declined drastically from historical averages. Many subsistence fisheries have been restricted or closed and many commercial fisheries have closed for a decade. In the Nome Sub-District, subsistence uses are currently restricted to only a few families who qualify as tier II permit holders. The tragedy of this decline to the communities combined with particularly weak salmon returns in 1998, resulted in the Secretary of Commerce declaring a fisheries disaster for the Norton Sound region. Following this declaration, on August 8, 2000, Congress appropriated $5 million to be used according to provisions of Sec. 312(a) of the Magnuson-Stevens Act (MSA).

The concept of forming a body to provide direction on disaster-related response efforts in Norton Sound was discussed in October 1999 and re-confirmed in a November 9, 2000 meeting in Nome. The Norton Sound Research and Restoration Memorandum of Understanding was developed in response to these meetings.

II. Purpose

The purpose of the Norton Sound Research and Restoration Memorandum of Understanding is to provide a forum to engage in a collaborative, regional and interagency-based approach to developing and implementing a comprehensive and strategic Norton Sound Salmon Research and Restoration Plan (hereinafter referred to as the Research and Restoration Plan). The development of this plan and the implementation of research and restoration is to be funded initially by the $5 million appropriated through the Department of Commerce under section 312(a) of the Magnuson-Stevens Act and other funds which shall become available.

III. Guiding Principles

- The $5 million appropriated by Congress under Section 312(a) of the Magnuson-Stevens Act is not sufficient to fund all the fishery research and restoration needs of salmon stocks in Norton Sound.
- The $5 million appropriation should be spent in a manner to obtain the greatest good for the fisheries and users in the Norton Sound region. This includes the consideration of traditional and cultural knowledge.
- To maximize the use of these funds, they shall be used to the degree possible and consistent with this MOU, in coordination with other fishery funding sources and plans, for example the State of Alaska, the Federal Office of Subsistence Management, the National Marine Fisheries Service, the Bering Sea Research Fund, the North Pacific Salmon Treaty, the Exxon Valdez Oil Spill Trustee Council and

other sources. Collaborative research jointly funded with such entities should be undertaken to the maximum extent practicable.

- The intent of these funds is not to duplicate past or existing research but to add to current expenditures in the region for fishery research. Therefore, these funds shall not be used to replace funds for current research projects. Signatories to this agreement shall continue to actively seek other funds to undertake necessary fishery research in Norton Sound, and shall make an annual report to the parties of this agreement of such efforts.
- The appropriation shall be used for research and restoration consistent with and directed through the Research & Restoration Plan for the salmon stocks of Norton Sound developed through the Scientific Technical Committee-Steering Committee process described below.
- Development of the Research & Restoration plan shall take into account existing plans and shall be based upon recommendations forwarded by a Scientific Technical Committee (STC) of disciplinary experts. The STC shall be composed of members that represent relevant scientific disciplines. STC members will exercise, to the greatest degree possible, their independent judgment about research and restoration needs and priorities.
- Decisions regarding adopting and implementing the Research and Restoration Plan, including authorizing a grant application and subsequent modifications to the Department of Commerce for use of the $5 million disaster fund, shall be made by a seven member Steering Committee composed of regional, state and federal representatives. The Steering Committee shall make its decisions only after reviewing the comments and recommendations of the public and the Scientific Technical Committee.

IV. Steering Committee

1. Membership

The Steering Committee membership will consist of seven members selected as follows:

Three members selected by the following regional organizations:

Kawerak, Inc.
Norton Sound Economic Development Corporation
Bering Sea Fisherman's Association
Bering Straits Native Corporation

One member selected by the following public advisory committees:

Norton Sound Aquaculture Association
Northern Norton Sound F&G Advisory Committee
Southern Norton Sound F&G Advisory Committee
Federal Subsistence Regional Advisory Council

Two members selected from the following State agencies:

Commercial Fisheries Division, ADF&G
Subsistence Division, ADF&G
Sport Fish Division, ADF&G
Habitat and Restoration Division, ADF&G

One member selected by the following Federal agencies:

National Park Service
Bureau of Land Management
Office of Federal Subsistence Management
Federal Fishery Information Service
National Marine Fisheries Service

One Elder will be selected by the region's Elder Committees to serve as a standing *ex officio* member of the Steering Committee. This individual's travel and per diem will be paid for under the Commerce Grant.

The above agencies and organizations shall be provided notice of Steering Committee meetings and, at their request, relevant information, including recommendations and other materials provided by the Scientific Technical Committee. In addition, interested agencies, organizations, associations, tribes, corporations, cities and other interested parties may participate in Steering Committee meetings as *ex officio* members.

Bylaws shall be drafted after initial members are appointed which shall govern the appointment or election and term of the Chairperson, quorums, appointment of alternates and other matters necessary for governing the Steering Committee.

2. Steering Committee Decision-Making process

A consensus decision-making process will be used by the Steering Committee..

A separate, non-voting Scientific Technical Committee (STC) shall make recommendations to the Steering Committee. The formations and responsibilities of the STC are detailed in section V below.

3. Steering Committee Responsibilities

The Steering Committee shall adopt a Research and Restoration Plan for Norton Sound salmon fisheries after considering the recommendations of the STC and the public.

The Steering Committee shall:

- Make decisions to determine how the $5 million disaster fund, and subsequent funding shall be expended;

- Exercise this authority by deciding the scope, timing, amount and other necessary elements for the Department of Commerce grant for the $5 million disaster fund, any modifications thereto and any subsequent funding that becomes available. Projects authorized by the Steering Committee shall further specific research and restoration goals of the approved plan;

- Have all necessary authority to solicit projects , work with scientific or other experts, identify and prioritize projects for funding, review project results, and ensure data and results are freely available to the public;

- Require the timely completion of projects and facilitate the communication of research results to other interested agencies and individuals annually;

- Appoint five STC members based on nominations from regional organizations, ADF&G, those federal agencies with fishery research or management jurisdiction and the public. The nomination process, membership and disciplinary balance for the STC are described below in section V;

- Review and approve reports to the Secretary of the Department of Commerce concerning the results of research conducted through the Norton Sound Fisheries Disaster Fund;

- Ensure the public is provided the opportunity to participate in Steering Committee meetings and to review and comment on proposed projects.

4. Fiscal Responsibility

Fiscal responsibility for administration of the $5 million Department of Commerce FY'01 appropriation rests with the Commissioner of the Department of Fish and Game (ADF&G). Expenditures of these funds will be in accordance with state fiscal procedures and procurement policies. As a signatory to the MOU, ADF&G agrees to expend these funds in accordance with the decisions of the Steering Committee.

The Steering Committee and the ADFG shall ensure the efficient and effective expenditure of funds. Whenever possible, projects shall be coordinated with other related research and restoration projects. Jointly funded research projects that meet the goals and priorities set by the Steering Committee shall be solicited.

5. Steering Committee Meetings

The Steering Committee shall meet as necessary to fulfill its responsibilities and conduct business.

Meetings of the Steering Committee shall be open to the public, and the public shall be provided reasonable notice of official meetings.

Meetings shall include, to the greatest degree practicable, participation by organizations active in fisheries research and restoration issues. Such organizations include, but are not limited to, the North Pacific Research Board, the Exxon Valdez Oil Spill Trustee Council, the Northern Fund of the Pacific Salmon Commission, and the Southeast Sustainable Fisheries Fund. These organizations shall be given reasonable notice of all meetings. Copies of all relevant STC recommendations, grant applications, project results and other information will be provided upon request. Comments, and direct participation when appropriate, shall be actively solicited from these organizations on relevant issues before the Steering Committee.

Notice of meetings and copies of relevant grant applications, project results and other information shall be provided to the Alaska Board of Fisheries, the North Pacific Fishery Management Council and the Federal Subsistence Board upon request.

Meetings shall be conducted according to Robert's Rules of Order except as may be modified in any by-laws that may be adopted.

V. Scientific Technical Committee

1. STC Membership

The Scientific Technical Committee (STC) shall consist of five members nominated by regional organizations, ADFG, those federal agencies with fishery research or management jurisdiction and other interested parties. The Steering Committee shall select STC members from these nominations.

Members shall be selected based upon their knowledge, expertise and ability to fulfill the responsibilities of the STC as outlined in this agreement.

Membership shall represent scientific disciplines including, but not be limited to, fisheries sciences, socio-economic sciences, aquatic habitat restoration, fish culture, marine ecology, freshwater ecology, community and population modeling, and population genetics.

Members may be employed by ADFG, federal agencies or regional organizations. One member shall be an ADF&G employee. However, no more than one member may come from any one of these groups (ADFG, federal or regional). At least two members must be selected from the private or academic sector.

In addition to official members, the STC may consult with scientific experts in fields outside those of the STC members.

2. STC Responsibilities

STC members will exercise their best independent judgment to advance understanding of salmon abundance and distribution in Norton Sound and the fisheries they support, independent of the governmental, academic or private sector they may represent.

The STC shall:

- Develop a Research and Restoration Plan for Norton Sound salmon fisheries and recommend this plan to the Steering Committee within six months of its inception. The plan shall address both marine and in-river research, ensure the efficient expenditure of funds, not duplicate but complement other relevant research; and recommend research priorities;
- Develop recommendations for restoration projects that will increase salmon returns to Norton Sound;
- Develop a protocol for reviewing and ranking research and restoration proposals and recommend this protocol to the Steering Committee;
- Evaluate suggested projects based on their technical merit and make recommendations to the steering committee.
- Regularly review ongoing projects, including project design (design should undergo peer review) and make recommendations on such to ensure research and restoration is conducted effectively and efficiently; and
- Make recommendations for augmenting, updating and revising research questions.

VI. Support for the Steering Committee and STC

With the understanding that additional funds may be sought, the following support activities will be funded from the $5 million dollars appropriated to this effort

- Travel expenses for the individuals selected to serve on the Steering Committee and the Scientific Technical Committee;

- Professional Service fees for academic and private sector involvement on the STC;

- Logistical support for the meetings of the Steering Committee and the Scientific Technical Committee, the coordination of communication and public outreach efforts, and administrative support, such as the recording of meeting minutes.

VII. Mutual Agreement and Understandings

It is mutually agreed that:

- Nothing in this agreement obligates any party in the expenditure of funds, or for future payments of money, in excess of appropriations authorized by law and administratively allocated for these purposes.

- Nothing in this agreement is intended to conflict with federal, state, or local laws or regulations. If there are conflicts, this agreement will be amended at the first opportunity to bring it into conformance.
- External policy and position announcements relating specifically to this agreement may be made only by mutual consent of the signatories.
- All signatories shall meet jointly on at least an annual basis to discuss matters relating to this agreement. Many of the criteria and assumptions contained in this agreement are interim assumptions and subject to further refinement. Signatories may request an earlier review. No revision shall be binding to signatories without the written consent of both agencies.
- The effective date of this agreement shall be from the date of the final signature.
- Termination date of this agreement shall be five years from the date of final signature.
- Any signatory may terminate its participation in this agreement by providing to the other parties notice in writing 30 days in advance of the date on which its termination becomes effective. However, the State of Alaska agrees that in the event the state were to terminate early, the state will again initiate discussions with the parties, with the intent of developing an alternative research and restoration agreement. The state will not unilaterally proceed with a research plan in the absence of an agreement with local stakeholders."

VIII. Signatures

_____	_____
Frank Rue, Commissioner Alaska Department of Fish and Game P.O. Box 25526 Juneau, Alaska 99802-5526	Norton Sound Economic Development Corporation
_____	_____
United States Fish & Wildlife Service 1011 East Tudor Road Anchorage, Alaska 99503	Kawerak Incorporated P.O. Box 948 Nome, Alaska 99762
_____	_____
Southern Norton Sound Fish & Game Game Advisory Committee	Northern Norton Sound Fish & Advisory Committee
_____	_____
Seward Peninsula Federal Subsistence Regional Advisory Committee	Bering Straits Native Corporation P.O. Box 1008 Nome, AK 99762

Norton Sound Aquaculture
Association